

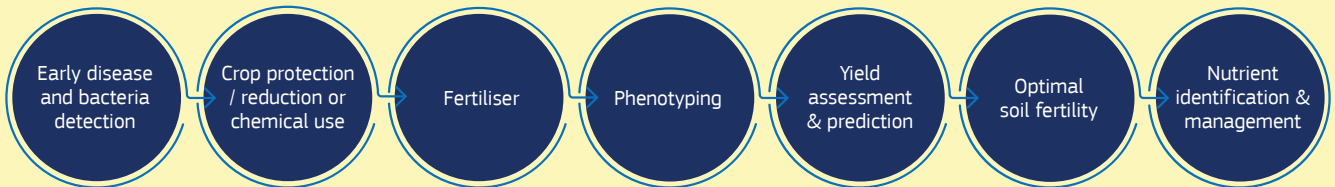
# How can farmers benefit from the adoption of photonics?

## Product Watch: Photonics technology for high intensity farming

**Photonics** is a multidisciplinary domain dealing with light, encompassing its generation, detection and management. Among other things it provides the technological basis for the economic conversion of sunlight to electricity which is important for the production of renewable energy, and a variety of electronic components and equipment such as photodiodes, LEDs and lasers.

**High intensity farming** is understood to focus on fruits, viticulture, tree nurseries, and protected cultivation of crops such as fruits and vegetables grown in greenhouses.

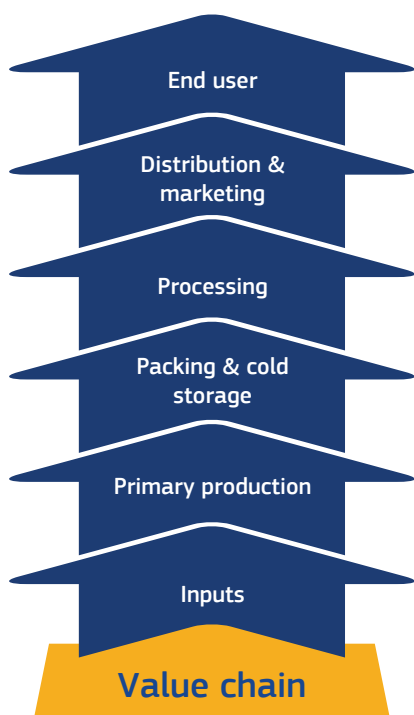
### Opportunities for photonic applications in high intensity farming



### Optimal production process for photonics in high intensity farming



The application of photonics in the value chain has been essential in supporting increased food production, food quality and limiting food losses



### Key stakeholders in the value chain



# In order to fully capture the benefits of photonics in the high intensity farming value chain several challenges need to be addressed



## Data sharing

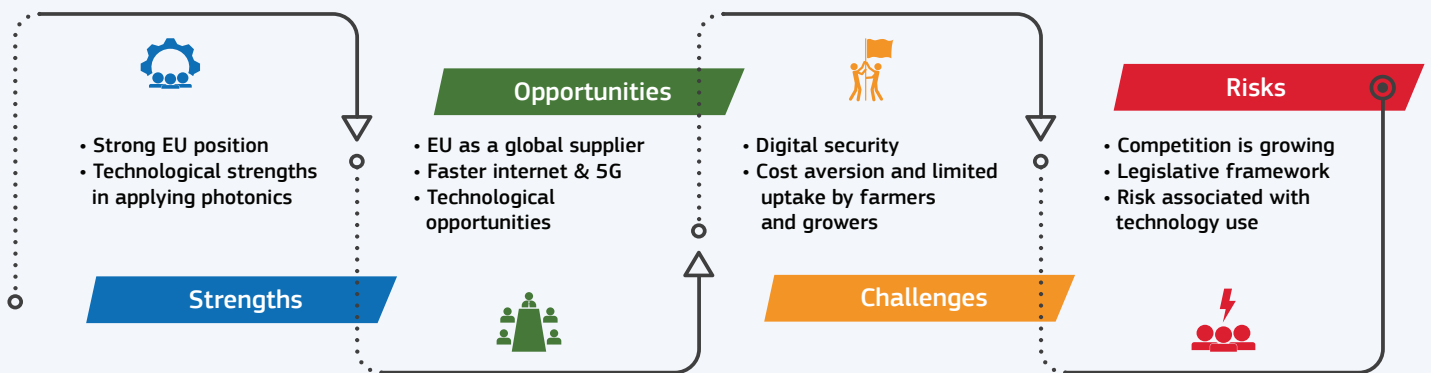
Although farmers are increasingly involved in gathering data, not all data is gathered in the same way at all farms. Thus, data is not communicated well across the value chain as a whole. For example, in the Netherlands, efforts are ongoing to introduce data standards in greenhouses for growers to apply new technologies in the same way.



## Interoperability of data

Interoperability in high intensity farming is essential to combine the various data sources coming from soil and crop analysis, camera screening techniques, environmental data, agronomic data, etc. The interoperability issue arises when combining and analysing the different types of data, such as technical interoperability and semantic interoperability.

## EU competitive positioning for photonics applications in high intensity farming



Source: IDEA Consult

## About the Advanced Technologies for Industry (ATI) project

The ATI project – funded by the European Commission – supports the **implementation** of Europe's new growth strategy with a systematic monitoring of **technological trends** and reliable, **up-to-date data** on advanced technologies.



The **Product Watch** analyses novel products that are based on advanced technologies for the development of goods and services – enhancing their overall commercial and social value. It supports cluster organisations and S3 partnerships, providing intelligence on innovation areas where European regions could team up and invest together.

For more information, read the full Product Watch on the Photonics technology for high intensity farming here:

<https://ati.ec.europa.eu/reports/product-watch/photonics-technology-high-intensity-farming>

